



December 20, 2006

**VIA FEDERAL EXPRESS**

The Honorable Magalie Roman Salas  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426

**Re: Eighty-Second Weekly DMM Report  
on Market Impacts of Amendment No. 66  
Docket No. ER05-718**

Dear Secretary Salas:

Pursuant to Paragraph 21 of the Commission's "Order on Tariff Filing" issued in this docket on April 7, 2005, 111 FERC ¶ 61,008 (2005), and Paragraph 27 of the Commission's "Order on Tariff Filing," issued in this docket on September 30, 2005, 112 FERC ¶ 61,352 (2005) ("September 30 Order"), the California Independent System Operator Corporation ("ISO") respectfully submits an original and fourteen copies of the Eighty-Second Report on Market Impacts of Amendment 66, as prepared by the ISO's Department of Market Monitoring.

An additional copy of this filing is enclosed to be date-stamped and returned in the enclosed, pre-paid Federal Express envelope. If there are any questions concerning this filing, please contact the undersigned.

Respectfully Submitted,

Sidney Mannheim Davies

Counsel for the California Independent  
System Operator Corporation



California ISO  
Your Link to Power

# **Report on Market Impacts of Amendment 66: “As-Bid” Settlement of Pre-dispatched Inter-tie Bids for Real Time Energy**

Prepared by the Department of Market Monitoring  
California Independent System Operator  
December 22, 2006

## Background

In Amendment No. 66, the California Independent System Operator (“CAISO”) proposed to modify the CAISO Tariff so that bids for incremental and decremental energy on inter-ties with neighboring control areas that are pre-dispatched by the CAISO are settled under a “pay as bid” rule. With this modification, bids would be paid (or pay the CAISO) their original bid price, rather than the “bid or better” in effect since October 1, 2004.<sup>1</sup>

In its April 7, 2005 order on Amendment No. 66, the Federal Regulatory Energy Commission (“Commission”) approved the “pay as bid” settlement rule effective as of March 24, and also ordered the CAISO’s Department of Market Analysis (“DMA”) to file weekly reports on the market effects of these interim tariff provisions, including “the liquidity and sufficiency of bids at the inter-ties”.

The following report is submitted by DMA in response to the above directive in the Commission’s Order on Amendment 66.<sup>2</sup> This weekly report includes additional data from December 9, 2006 through December 15, inclusive.<sup>3</sup>

## Report Findings

### ***Cost Impacts of Amendment No. 66***

Figures 1 and 2 summarize total energy pre-dispatched by the CAISO for market clearing versus CAISO system demand for energy, and the costs associated with overlapping (or off-setting) incremental (“inc”) and decremental (“dec”) bids dispatched to clear the market. Table 1 summarizes these same data by week since implementation of Phase 1B on October 1, 2004.

As shown in Figure 1, the amount of overlapping inc and dec bids cleared by the CAISO dropped dramatically as soon as the CAISO moved from the “bid or better” settlement rule to the “as bid” settlement rule. Since the effective date of Amendment 66, an average of only about 25 MW of off-setting inc and dec bids have been pre-dispatched each hour, as opposed to an average of about 600 MW per hour in the month prior to implementation of Amendment 66. Between December 9 and December 15, an average of about 49 MW of off-setting inc and dec bids have been pre-dispatched each hour to clear the market.

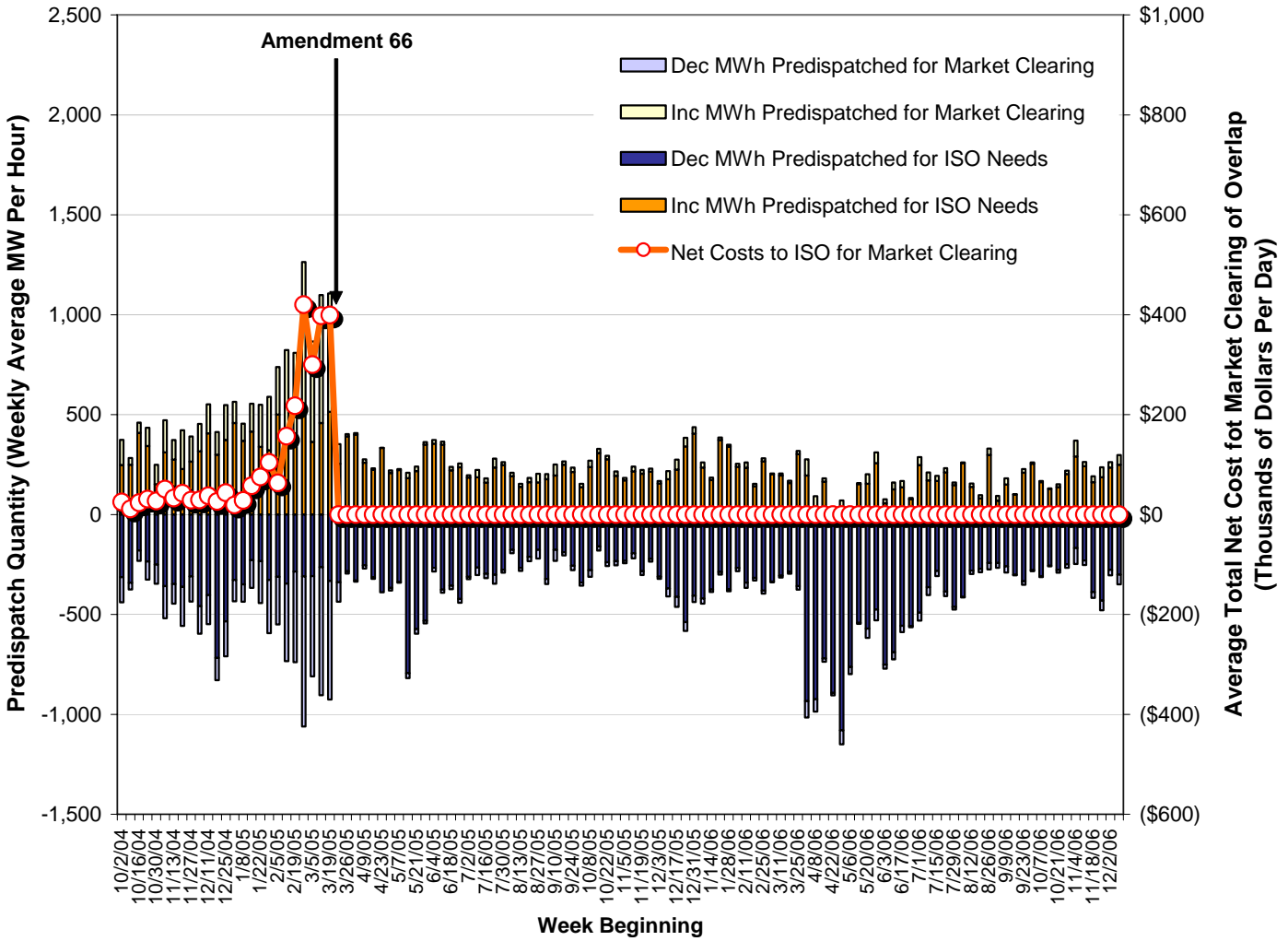
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<sup>1</sup> Under the “bid or better” settlement rule, inter-tie bids for incremental energy pre-dispatched by the CAISO prior to each operating hour were paid the higher of their bid price or the *ex post* real time market clearing price. Inter-tie bids for decremental energy pre-dispatched by the CAISO paid the lower of their bid price or the *ex post* real time market clearing price. See Amendment No. 66 Transmittal Letter.

<sup>2</sup> Under 2005 internal reorganization, the Department of Market Analysis (“DMA”) is now known as the Department of Market Monitoring (“DMM”).

<sup>3</sup> The 7-day lag between the most recent data in this report and the filing date of this report reflects the time needed for post-operational checks and changes done as part of the CAISO settlement process, as well as time needed to prepare and review the report.

**Figure 1. Average Hourly Volume of Bids Pre-Dispatched by the CAISO and Average Daily Costs to CAISO of Market Clearing  
(By Week Since Phase1B Implementation)**



**Table 1. Weekly Summary Data (Before and After Amendment 66)**

Week Beginning	Market Clearing (Average MW/hour)		Net CAISO Imbalance Energy (Average MW/hour)		Average Daily Net Costs (Thousands per Day)	
	Inc	Dec	Inc	Dec	Market Clearing	Net ISO Energy
10/2/2004	129	-129	106	-180	\$25	(\$690)
10/9/2004	45	-45	105	-197	\$20	\$14
10/16/2004	57	-57	291	-49	\$25	\$326
10/23/2004	104	-104	194	-102	\$40	\$177
10/30/2004	100	-100	46	-174	\$28	(\$132)
11/6/2004	162	-162	135	-202	\$51	(\$17)
11/13/2004	112	-112	75	-253	\$40	(\$130)
11/20/2004	202	-202	74	-244	\$44	(\$128)
11/27/2004	128	-128	102	-189	\$28	(\$52)
12/4/2004	143	-143	128	-273	\$32	(\$127)
12/11/2004	149	-149	179	-225	\$37	\$4
12/18/2004	117	-117	99	-481	\$30	(\$332)
12/25/2004	182	-182	133	-344	\$44	(\$166)
1/1/2005	107	-107	376	-58	\$19	\$467
1/8/2005	88	-88	224	-137	\$29	\$162
1/15/2005	144	-144	265	-83	\$62	\$261
1/22/2005	224	-224	231	-74	\$74	\$198
1/29/2005	267	-267	156	-167	\$104	\$40
2/5/2005	238	-238	368	-82	\$63	\$385
2/12/2005	388	-388	278	-123	\$155	\$246
2/19/2005	468	-468	224	-105	\$224	\$216
2/26/2005	765	-765	353	-94	\$424	\$419
3/5/2005	508	-508	196	-126	\$298	\$143
3/12/2005	641	-641	297	-92	\$400	\$375
3/19/2005*	599	-599	253	-169	\$399	\$190
<i>Change from "Bid or Better" to "As-Bid" Settlement</i>						
3/26/2005	22	-22	224	-87	-	\$211
4/2/2005	14	-14	213	-140	-	\$160
4/9/2005	15	-15	130	-109	-	\$88
4/16/2005	8	-8	64	-219	-	(\$106)
4/23/2005	10	-10	53	-319	-	(\$204)
4/30/2005	14	-14	28	-318	-	(\$208)
5/7/2005	5	-5	42	-273	-	(\$144)
5/14/2005	34	-34	39	-631	-	(\$88)
5/21/2005	38	-38	49	-450	-	(\$10)
5/28/2005	14	-14	164	-287	-	\$13
6/4/2005	22	-22	215	-109	-	\$145
6/11/2005	29	-29	153	-210	-	\$21
6/18/2005	18	-18	47	-280	-	(\$170)
6/25/2005	19	-19	96	-252	-	(\$35)
7/2/2005	11	-11	83	-170	-	(\$12)
7/9/2005	37	-37	84	-147	-	(\$9)
7/16/2005	22	-22	32	-239	-	(\$167)
7/23/2005	50	-50	105	-170	-	(\$30)
7/30/2005	19	-19	82	-197	-	(\$98)
8/6/2005	21	-21	87	-100	-	\$6
8/13/2005	15	-15	49	-178	-	(\$166)
8/20/2005	28	-28	65	-147	-	(\$127)

Week Beginning	Market Clearing (Average MW/hour)		Net CAISO Imbalance Energy (Average MW/hour)		Average Daily Net Costs (Thousands per Day)	
	Inc	Dec	Inc	Dec	Market Clearing	Net ISO Energy
8/27/2005	45	-45	79	-93	-	(\$34)
9/3/2005	25	-25	79	-183	-	(\$148)
9/10/2005	57	-57	115	-77	-	\$55
9/17/2005	17	-17	136	-85	-	\$68
9/24/2005	33	-33	89	-207	-	(\$106)
10/1/2005	17	-17	17	-312	-	(\$520)
10/8/2005	34	-34	93	-190	-	(\$124)
10/15/2005	21	-21	203	-57	-	\$332
10/22/2005	19	-19	145	-117	-	\$173
10/29/2005	43	-43	77	-148	-	(\$44)
11/5/2005	33	-33	63	-137	-	(\$62)
11/12/2005	55	-55	53	-122	-	(\$60)
11/19/2005	19	-19	83	-180	-	(\$95)
11/26/2005	23	-23	112	-110	-	\$25
12/3/2005	13	-13	52	-221	-	(\$330)
12/10/2005	47	-47	33	-335	-	(\$662)
12/17/2005	48	-48	77	-286	-	(\$362)
12/24/2005	51	-51	101	-389	-	(\$64)
12/31/2005	37	-37	204	-207	-	\$174
1/7/2006	27	-27	71	-297	-	(\$153)
1/14/2006	13	-13	37	-306	-	(\$161)
1/21/2006	30	-30	113	-194	-	(\$22)
1/28/2006	13	-13	102	-261	-	(\$92)
2/4/2006	27	-27	85	-187	-	(\$59)
2/11/2006	27	-27	234	-340	-	(\$178)
2/18/2006	13	-13	141	-317	-	(\$237)
2/25/2006	15	-15	266	-381	-	(\$112)
3/4/2006	4	-4	202	-335	-	(\$111)
3/11/2006	10	-10	196	-306	-	(\$126)
3/18/2006	11	-11	158	-285	-	(\$84)
3/25/2006	18	-18	301	-359	-	(\$138)
4/1/2006	82	-82	195	-934	-	(\$227)
4/8/2006	62	-62	31	-905	-	(\$335)
4/15/2006	17	-17	164	-720	-	(\$230)
4/22/2006	13	-13	0	-892	-	(\$180)
4/29/2006	70	-70	0	-1,080	-	(\$83)
5/6/2006	36	-36	0	-762	-	(\$274)
5/20/2006	47	-47	154	-570	-	(\$267)
5/27/2006	54	-54	257	-476	-	(\$84)
6/3/2006	21	-21	55	-751	-	(\$179)
6/10/2006	36	-36	125	-689	-	(\$6)
6/17/2006	33	-33	136	-556	-	(\$420)
6/24/2006	7	-7	77	-557	-	(\$431)
7/1/2006	40	-40	248	-491	-	(\$214)
7/8/2006	40	-40	170	-363	-	(\$280)
7/15/2006	26	-26	168	-283	-	(\$280)
7/22/2006	23	-23	210	-386	-	(\$105)
7/29/2006	13	-13	147	-462	-	(\$456)
8/5/2006	4	-4	257	-412	-	(\$384)
8/12/2006	17	-17	138	-281	-	(\$220)

Week Beginning	Market Clearing (Average MW/hour)		Net CAISO Imbalance Energy (Average MW/hour)		Average Daily Net Costs (Thousands per Day)	
	Inc	Dec	Inc	Dec	Market Clearing	Net ISO Energy
8/19/2006	17	-17	80	-272	-	(\$163)
8/26/2006	32	-32	298	-243	-	(\$100)
9/2/2006	23	-23	69	-243	-	(\$182)
9/9/2006	31	-31	150	-259	-	(\$147)
9/16/2006	3	-3	99	-301	-	(\$162)
9/23/2006	17	-17	210	-334	-	(\$175)
9/30/2006	6	-6	255	-278	-	(\$44)
10/7/2006	6	-6	162	-308	-	(\$152)
10/14/2006	3	-3	128	-256	-	(\$131)
10/21/2006	14	-14	138	-278	-	(\$206)
10/28/2006	18	-18	202	-249	-	(\$8)
11/4/2006	80	-80	290	-168	-	\$148
11/11/2006	22	-22	241	-230	-	\$23
11/18/2006	29	-29	162	-389	-	(\$157)
11/25/2006	49	-49	187	-431	-	(\$252)
12/2/2006	27	-27	235	-277	-	(\$12)
12/9/2006	49	-49	250	-300	-	(\$37)

**Figure 2. Average Hourly Volume of Bids Pre-Dispatched by the CAISO  
And Average Daily Costs to CAISO of Market Clearing  
(By Day)**

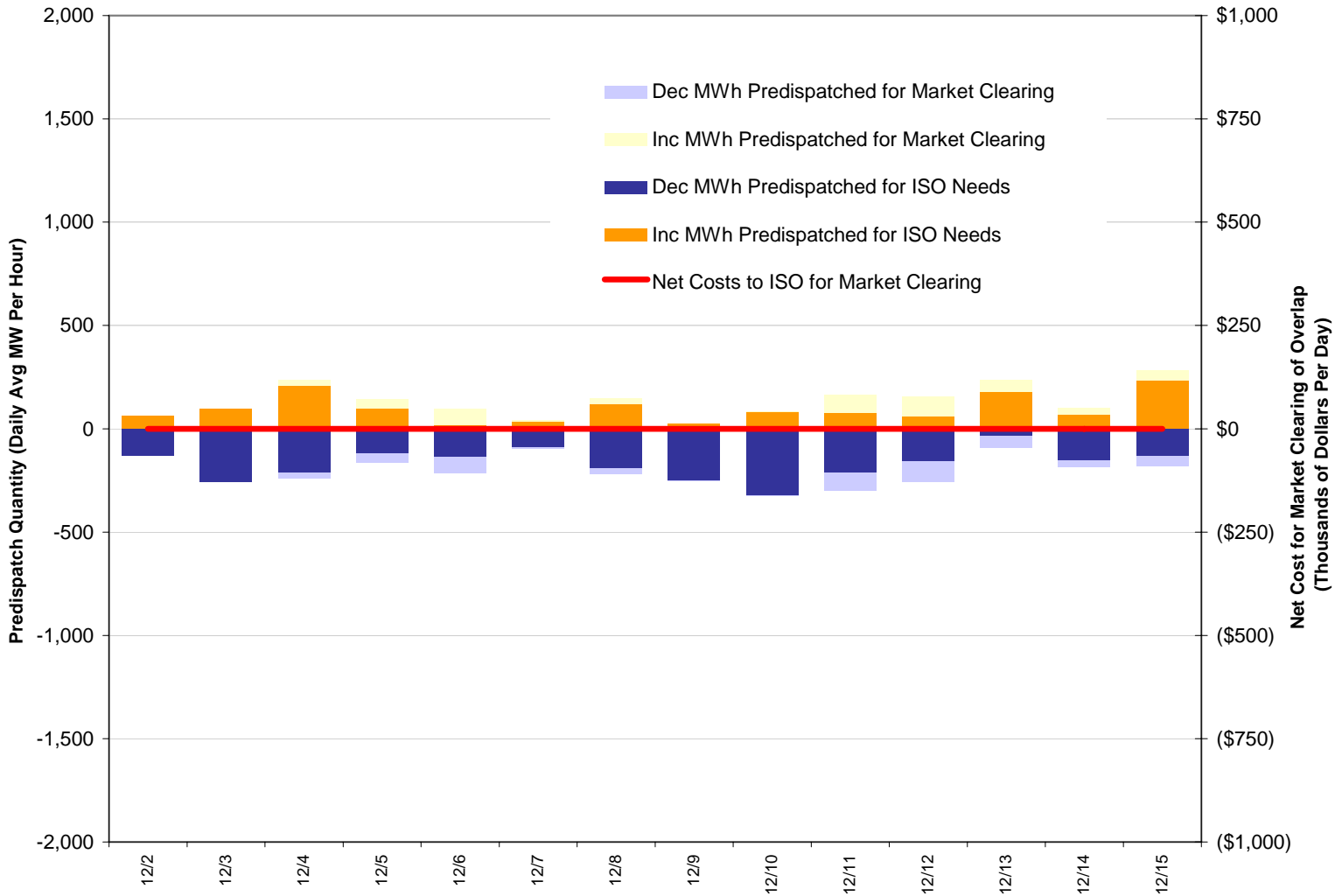


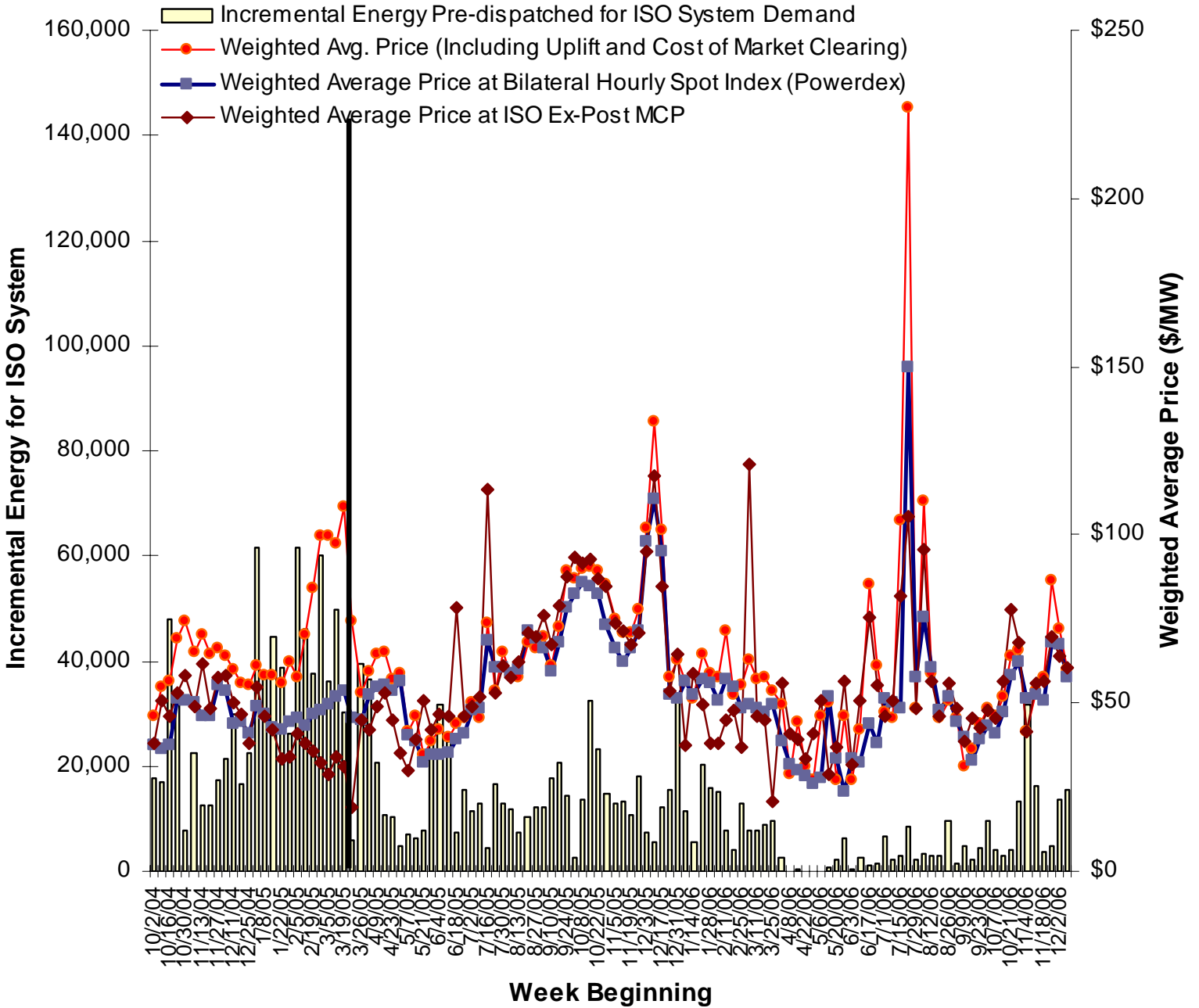


Figure 3 summarizes the total cost of net incremental energy purchased by the CAISO for CAISO system needs (i.e. net energy pre-dispatched when the sum of all pre-dispatched bids was positive, indicating the CAISO was a net purchaser of imbalance energy in the pre-dispatch process). The average price paid for pre-dispatched incremental energy was about \$60/MWh between December 9 and December 15. The weighted average price of incremental energy pre-dispatched by the CAISO calculated at the ex post price in the CAISO's real time market was about \$60/MWh during this period. The weighted average price reported for hourly spot market transactions in bilateral markets (Powerdex) during hours when the CAISO was a net importer of pre-dispatched energy was about \$58/MWh.

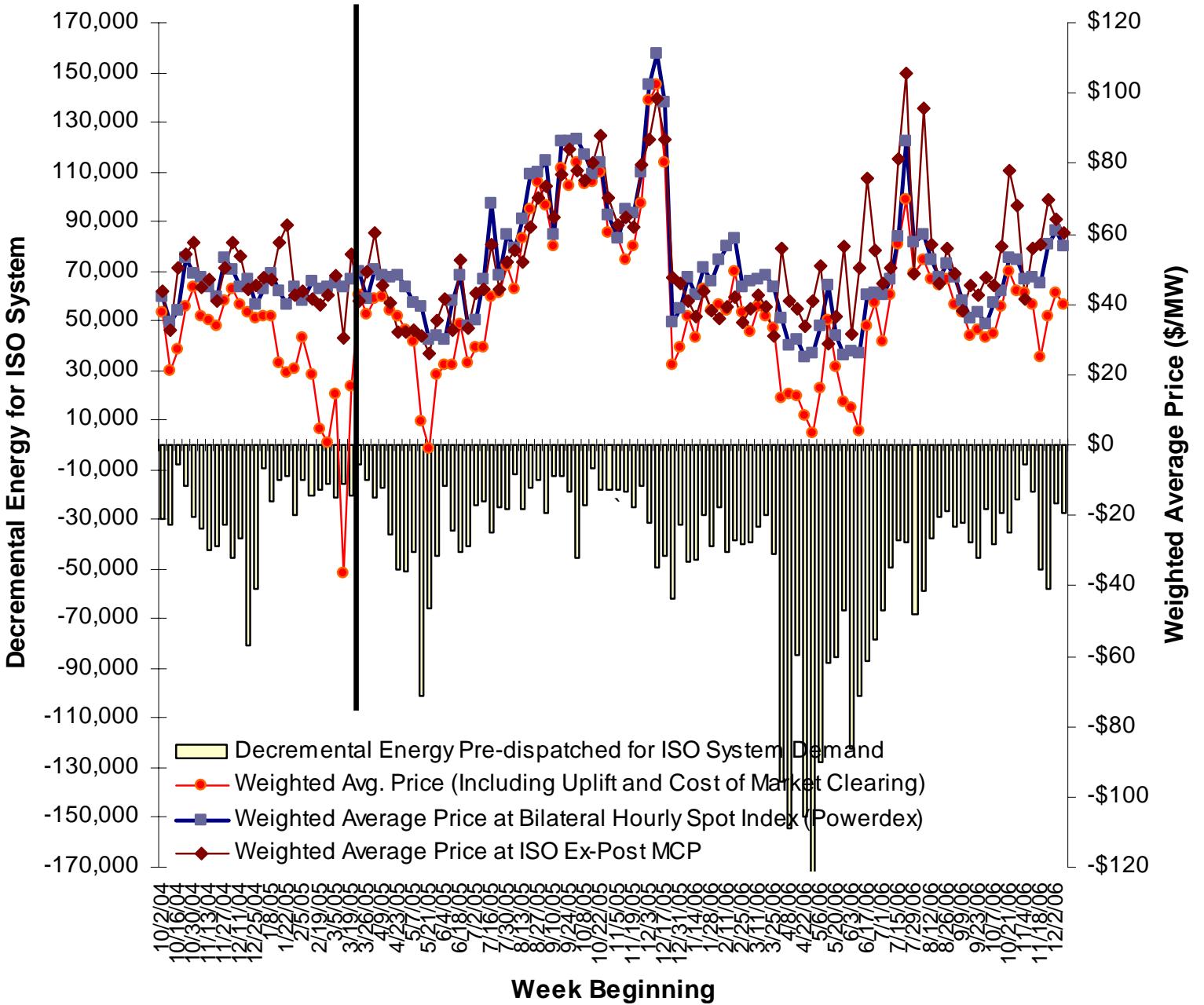
Figure 4 summarizes the total cost of net decremental energy sold by the CAISO for system needs (i.e. net energy pre-dispatched when the sum of all pre-dispatched bids was negative, indicating the CAISO was a net seller of imbalance energy in the pre-dispatch process).

Energy prices received by the CAISO for net decremental energy pre-dispatched averaged about \$40/MWh between December 9 and December 15. The weighted average price of this decremental energy pre-dispatched by the CAISO calculated at the ex post price in the CAISO's real time market was about \$60/MWh. The weighted average price reported for hourly spot market transactions in bilateral markets (Powerdex) during hours when the CAISO was a net exporter of pre-dispatched energy was about \$56/MWh.

**Figure 3. Total Net Cost of Incremental Energy Pre-dispatched For CAISO System Demand**



**Figure 4. Total Net Cost of Decremental Energy Pre-dispatched For CAISO System Demand**



## ***Inter-tie Bid Sufficiency and Liquidity***

Figure 5 shows the daily total volumes of incremental and decremental inter-tie bids since October, 2004, including the period between December 9 and December 15, categorized by bid price levels. Figure 6 shows these same bid data, but highlights the average hourly volume of net incremental bids submitted during weekdays on a weekly basis.

As shown in Figures 5 and 6, the volume of inter-tie bids received by the CAISO dropped slightly immediately after implementation of Amendment 66, but subsequently increased to a level almost equal to the volume of bids received during the week prior to implementation of Amendment 66 by the first week in May, 2005. Bid volumes, in both the import and export directions, have increased on average in the first half of 2006 compared with both 2004 and 2005.

As noted in previous reports, the CAISO has not experienced problems in terms of bid insufficiency or liquidity of incremental energy import bids since the switch to an “as-bid” market under Amendment 66. This report includes some additional analysis of overall trends in imports and import/export bid sufficiency.

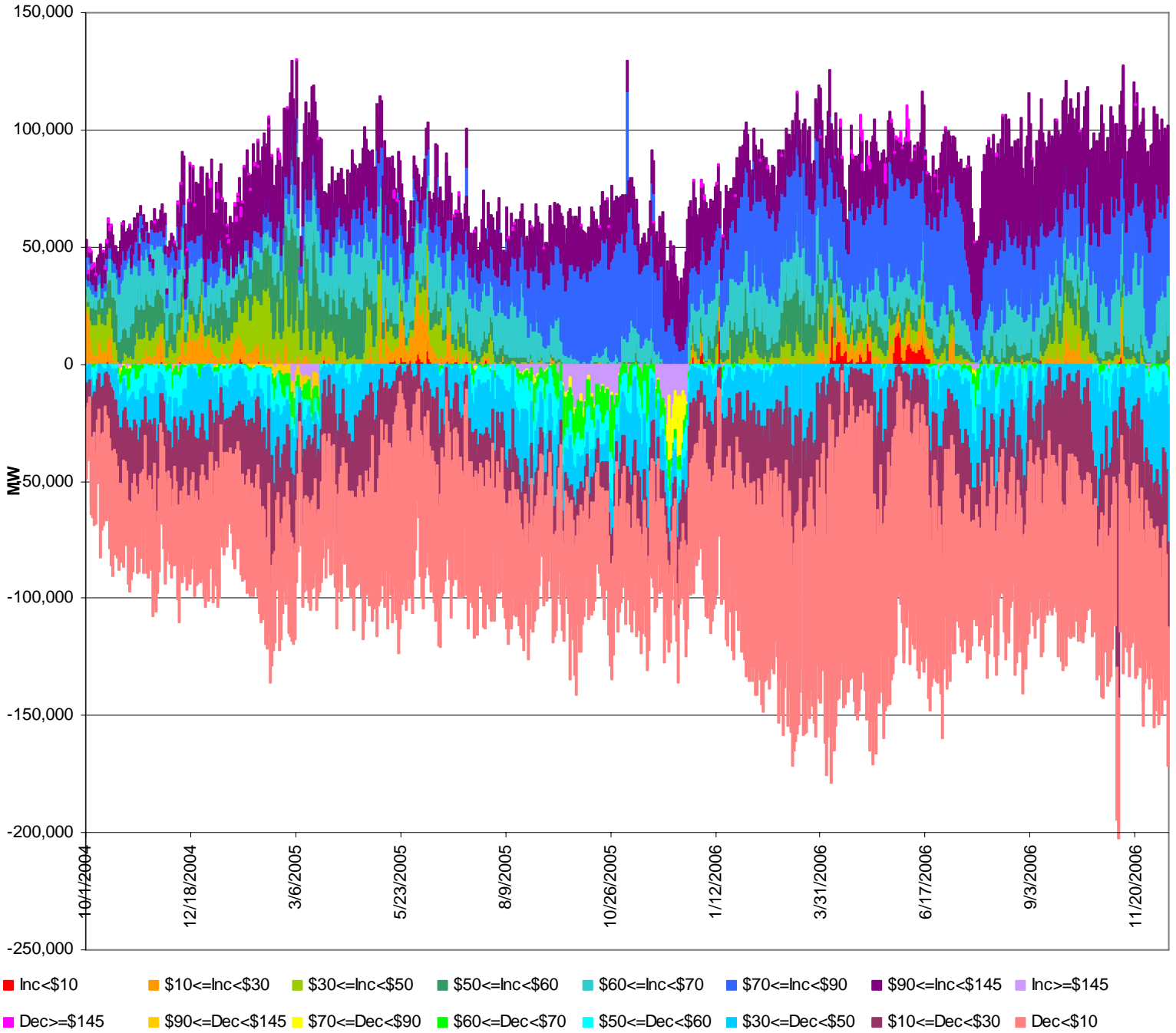
Figures 7 and 8 provide a summary of the total supply of imports on a weekly basis, including average hourly imports scheduled by participants (Final Hour Ahead Schedules), plus incremental energy bids and pre-dispatched by the CAISO.<sup>4</sup> As shown in Figure 7, while the total volume of incremental energy import bids may have decreased since Amendment 66, the total overall supply of imports scheduled or bid into the ISO system has increased significantly over this time due to a significant increase in imports scheduled directly by participants. In addition, as shown in both Figures 7 and 8, the volume of incremental energy import bids has also remained extremely high relative to the quantity of import bids actually pre-dispatched by the CAISO.

Figure 9 provides a similar summary of the total supply of decremental energy bids on inter-ties (exports) since October 2004. Again, these data show that the volume of decremental energy bids on interties has also remained very high relative to the quantity of dec bids actually pre-dispatched by the ISO.

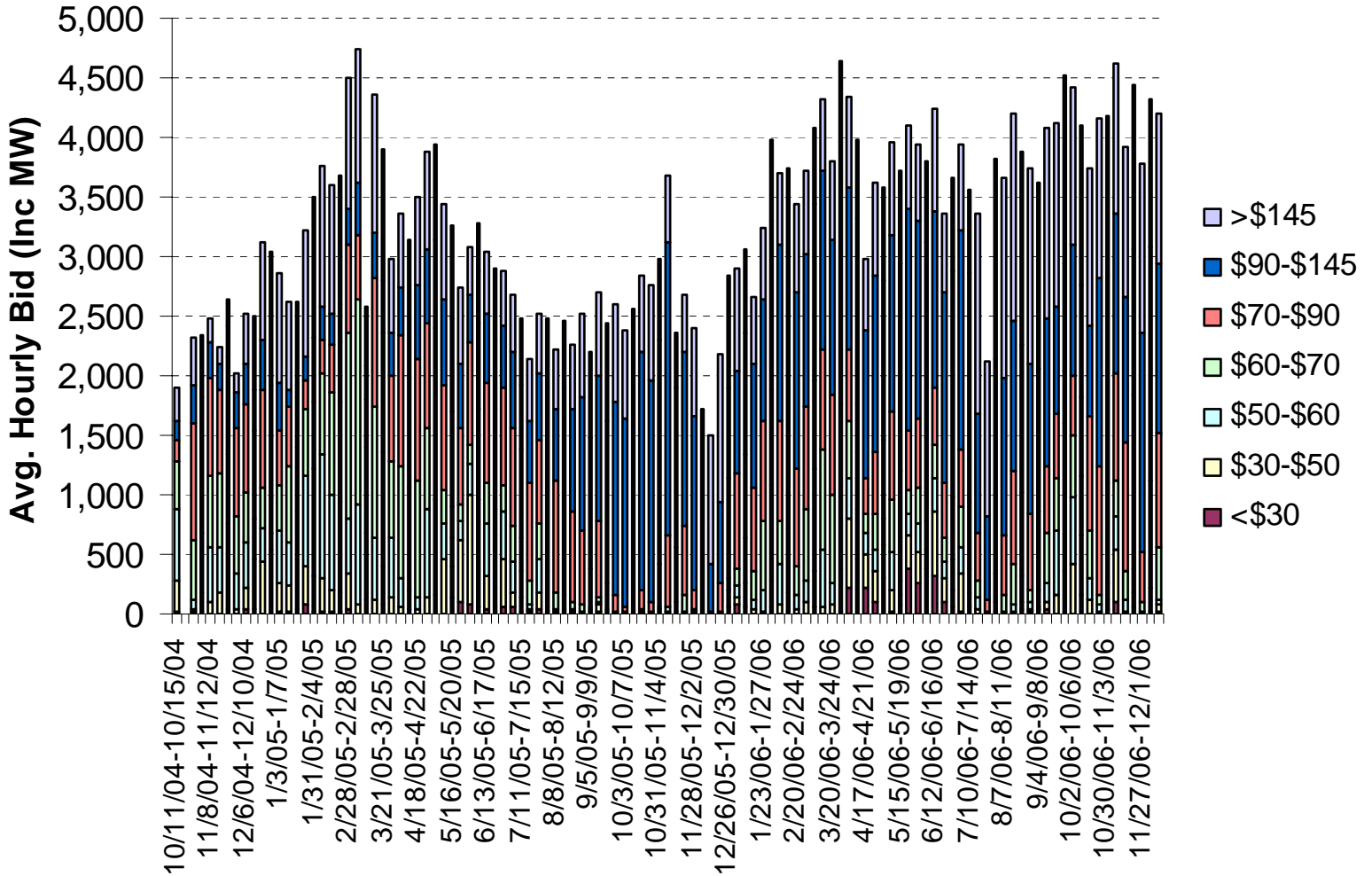
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<sup>4</sup> Analysis of import supplies is based on peak Hours Ending 13-20, while analysis of export (dec) bids and pre-dispatches is based on off-peak Hours Ending 1-8, following the time periods suggested by Powerex in a recent filing as the most appropriate hours for such analysis (*Protest of Powerex Corp*, filed on June 8, 2005 in protest of the ISO’s Comprehensive Market Redesign Proposal, May 13, 2005, ER02-1656-026, pp 12-13).

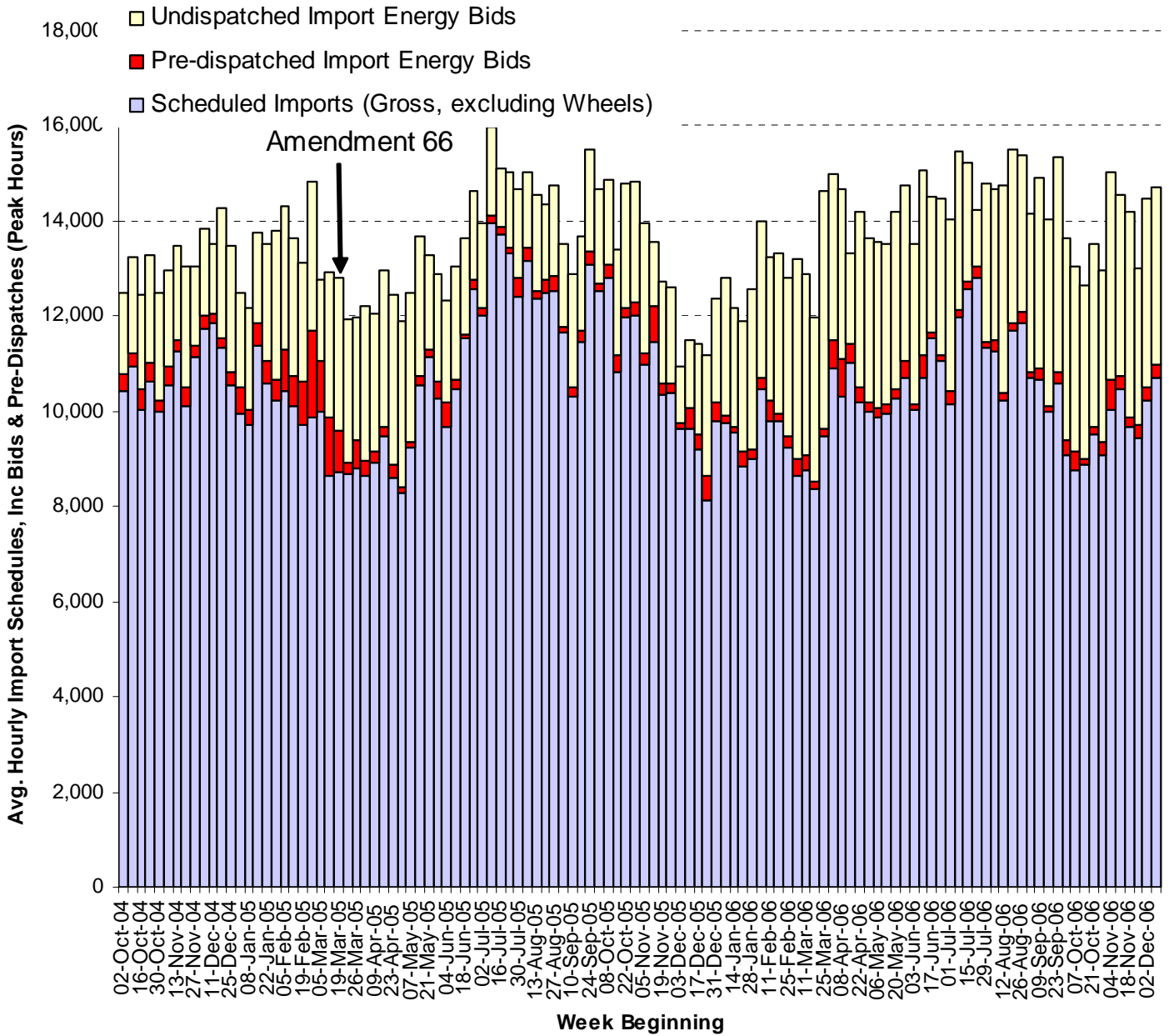
Figure 5. Inter-tie Bid Quantities and Prices



**Figure 6. Inter-Tie Bid Quantities and Prices for Incremental Energy**  
**Hourly Averages (Weekdays Only)**

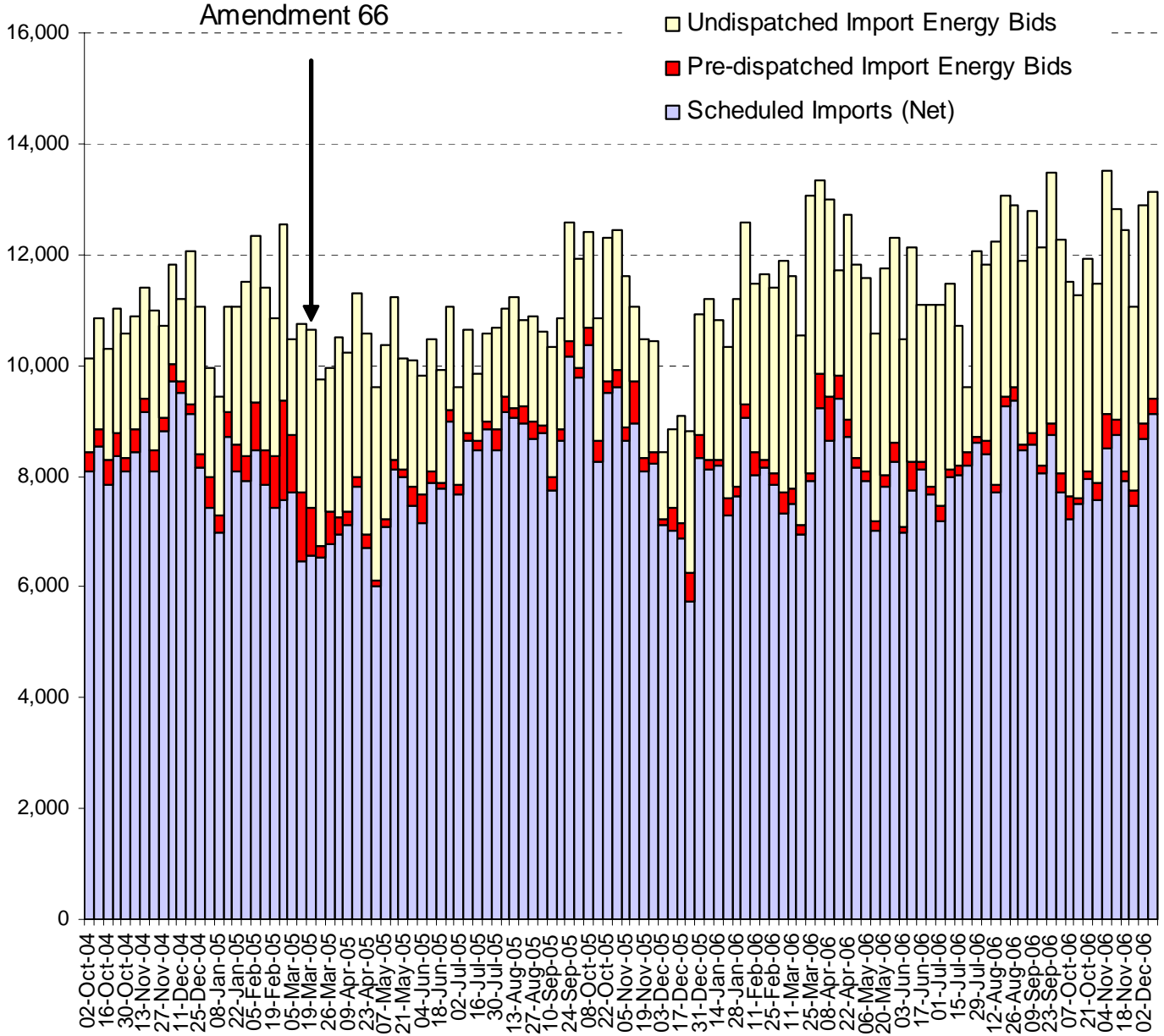


**Figure 7. Gross Scheduled Imports, Real Time Energy Import Bid Volumes, and Pre-Dispatched Imports  
Hourly Averages (Peak Hours 13-20)**



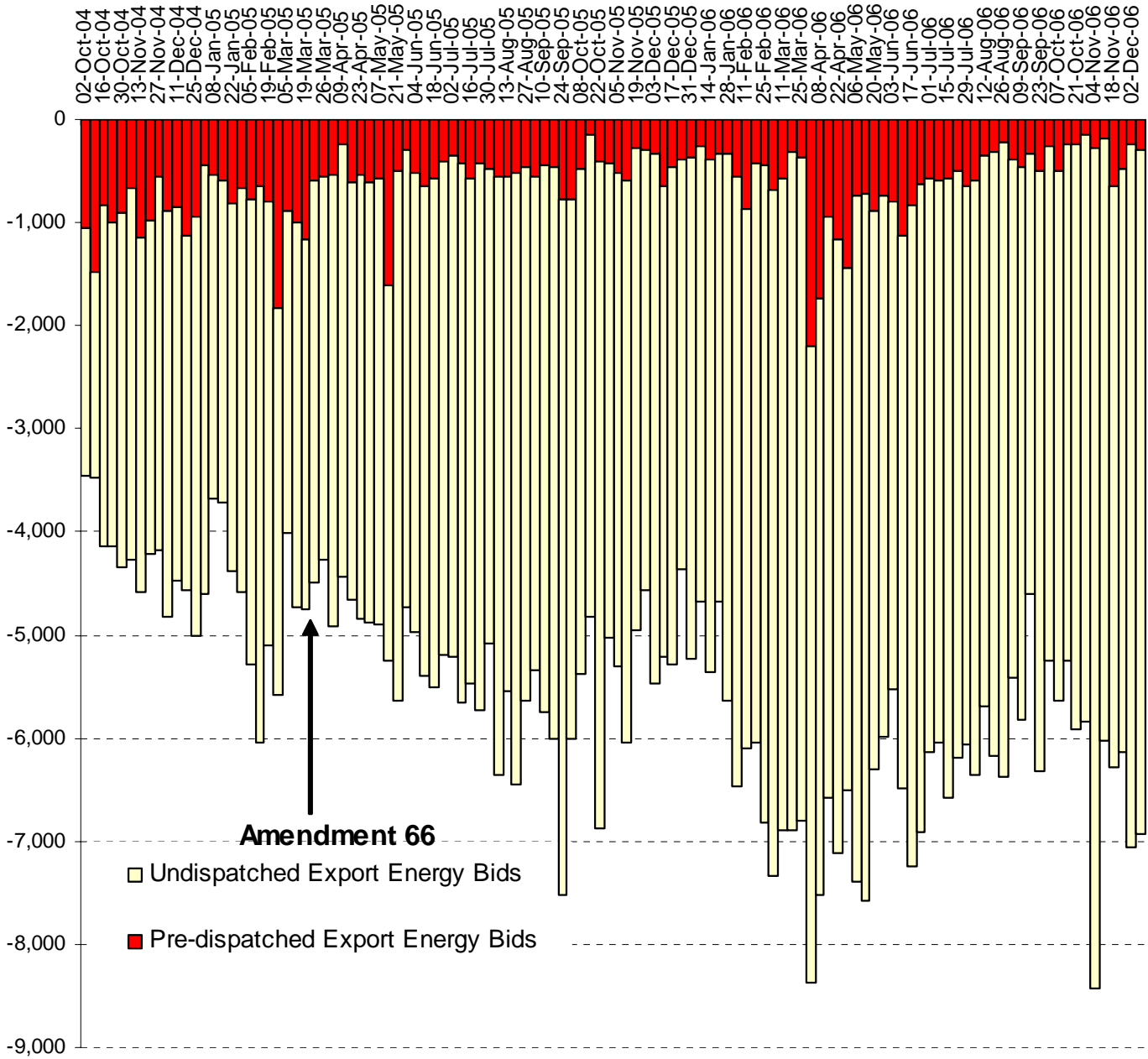
**Figure 8. Net Scheduled Imports, Real Time Energy Import Bid Volumes, and Pre-Dispatched Imports**

**Hourly Averages (Peak Hours 13-20)**





**Figure 9. Real Time Energy Export (Dec) Bid Volumes  
And Pre-Dispatched Exports  
Hourly Averages (Off-Peak Hours 1-8)**



Tables 2 and 3 and Figures 10 and 11 provide additional analysis requested by Powerex that the Commission directed the ISO to include in weekly reports in its September 13, 2005 Order on Amendment 66.

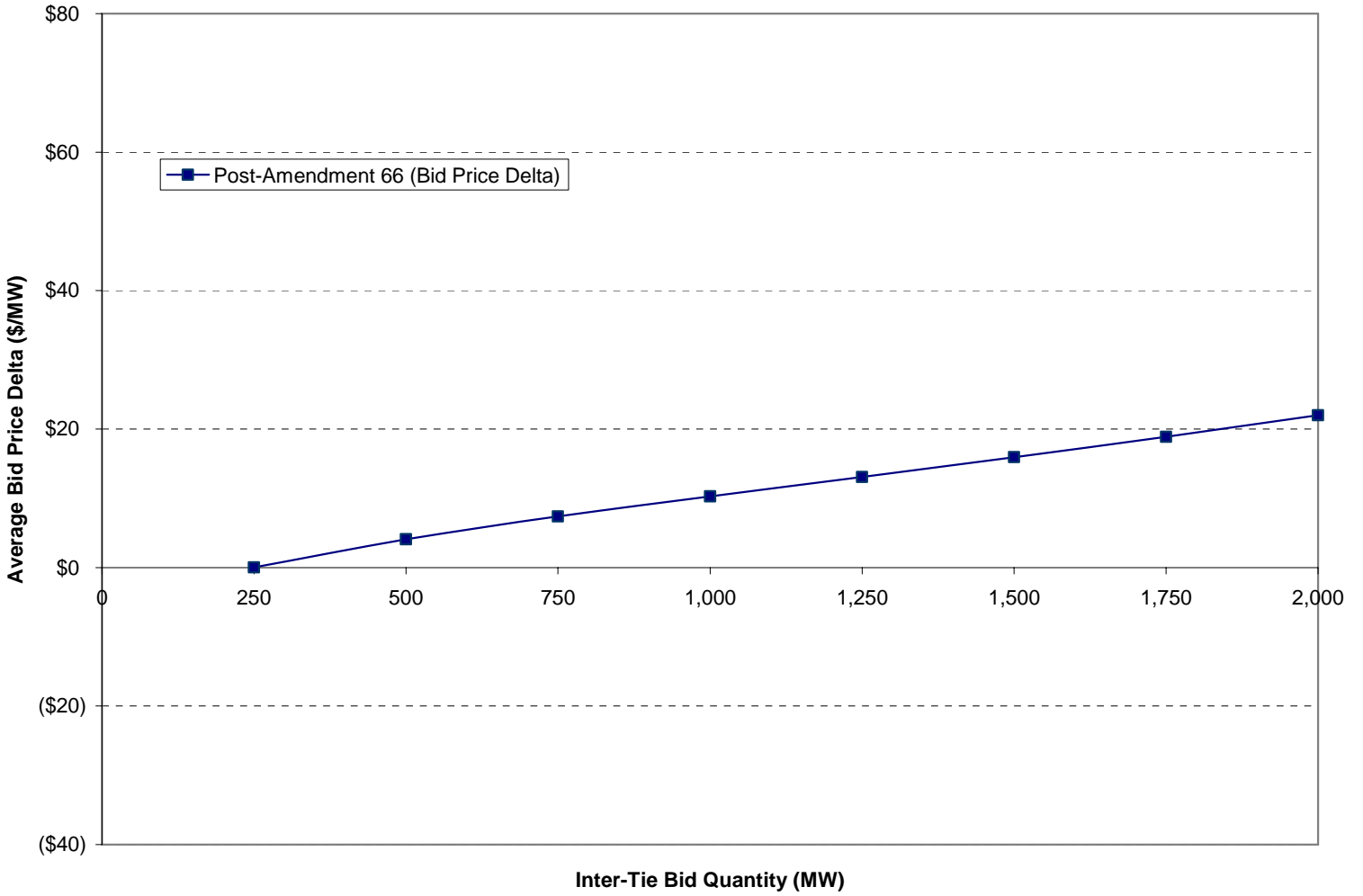
**Table 2. Costs for Net Pre-Dispatched Energy (DMM Approach)**

Month	<u>Incremental Energy</u>			<u>Decremental Energy</u>		
	Avg. Pre-Dispatch Cost	Bilateral Index	Difference	Avg. Pre-Dispatch Cost	Bilateral Index	Difference
October '04	\$57.74	\$45.22	\$12.53	\$31.93	\$42.68	(\$10.75)
November '04	\$66.85	\$53.44	\$13.41	\$37.34	\$46.05	(\$8.71)
December '04	\$59.59	\$50.39	\$9.19	\$39.22	\$48.29	(\$9.08)
January '05	\$59.29	\$47.85	\$11.45	\$26.05	\$47.14	(\$21.09)
February '05	\$69.32	\$48.13	\$21.19	\$18.89	\$42.40	(\$23.51)
March '05	\$103.83	\$51.13	\$52.70	\$0.64	\$45.23	(\$44.59)
<b>Total (Bid or Better)</b>	<b>\$70.20</b>	<b>\$48.87</b>	<b>\$21.34</b>	<b>\$30.69</b>	<b>\$45.96</b>	<b>(\$15.27)</b>
April '05	\$60.36	\$52.43	\$7.94	\$38.01	\$48.44	(\$10.44)
May '05	\$42.06	\$36.48	\$5.58	\$14.27	\$29.43	(\$15.16)
June '05	\$42.63	\$37.11	\$5.52	\$27.63	\$39.08	(\$11.45)
July '05	\$55.22	\$54.49	\$0.72	\$38.22	\$50.78	(\$12.56)
August '05	\$62.37	\$65.31	(\$2.94)	\$59.60	\$69.07	(\$9.47)
September '05	\$72.69	\$70.31	\$2.38	\$65.12	\$80.40	(\$15.28)
October '05	\$90.90	\$86.49	\$4.42	\$75.64	\$84.61	(\$8.97)
November '05	\$79.63	\$71.31	\$8.33	\$54.60	\$67.29	(\$12.68)
December '05	\$83.95	\$81.35	\$2.60	\$69.64	\$83.75	(\$14.11)
January '06	\$64.30	\$55.99	\$8.31	\$33.78	\$44.13	(\$10.35)
February '06	\$61.87	\$56.03	\$5.83	\$40.70	\$53.29	(\$12.59)
March '06	\$57.70	\$51.55	\$6.15	\$34.64	\$47.46	(\$12.82)
April '06	\$60.48	\$41.33	\$19.15	\$11.60	\$25.24	(\$13.64)
May '06	\$58.52	\$33.53	\$24.99	\$14.86	\$26.91	(\$12.05)
June '06	\$52.63	\$43.03	\$9.60	\$14.88	\$26.60	(\$11.73)
July '06	\$121.93	\$96.05	\$25.87	\$42.34	\$55.01	(\$12.67)
August '06	\$112.71	\$72.45	\$40.26	\$52.83	\$58.56	(\$5.73)
September '06	\$43.95	\$39.82	\$4.12	\$34.27	\$42.00	(\$7.73)
October '06	\$56.10	\$48.85	\$7.24	\$39.06	\$45.69	(\$6.63)
November '06	\$53.60	\$57.53	(\$3.93)	\$29.87	\$46.95	(\$17.08)
<b>Total (As-Bid)</b>	<b>\$63.75</b>	<b>\$58.66</b>	<b>\$5.09</b>	<b>\$30.63</b>	<b>\$42.41</b>	<b>(\$11.78)</b>

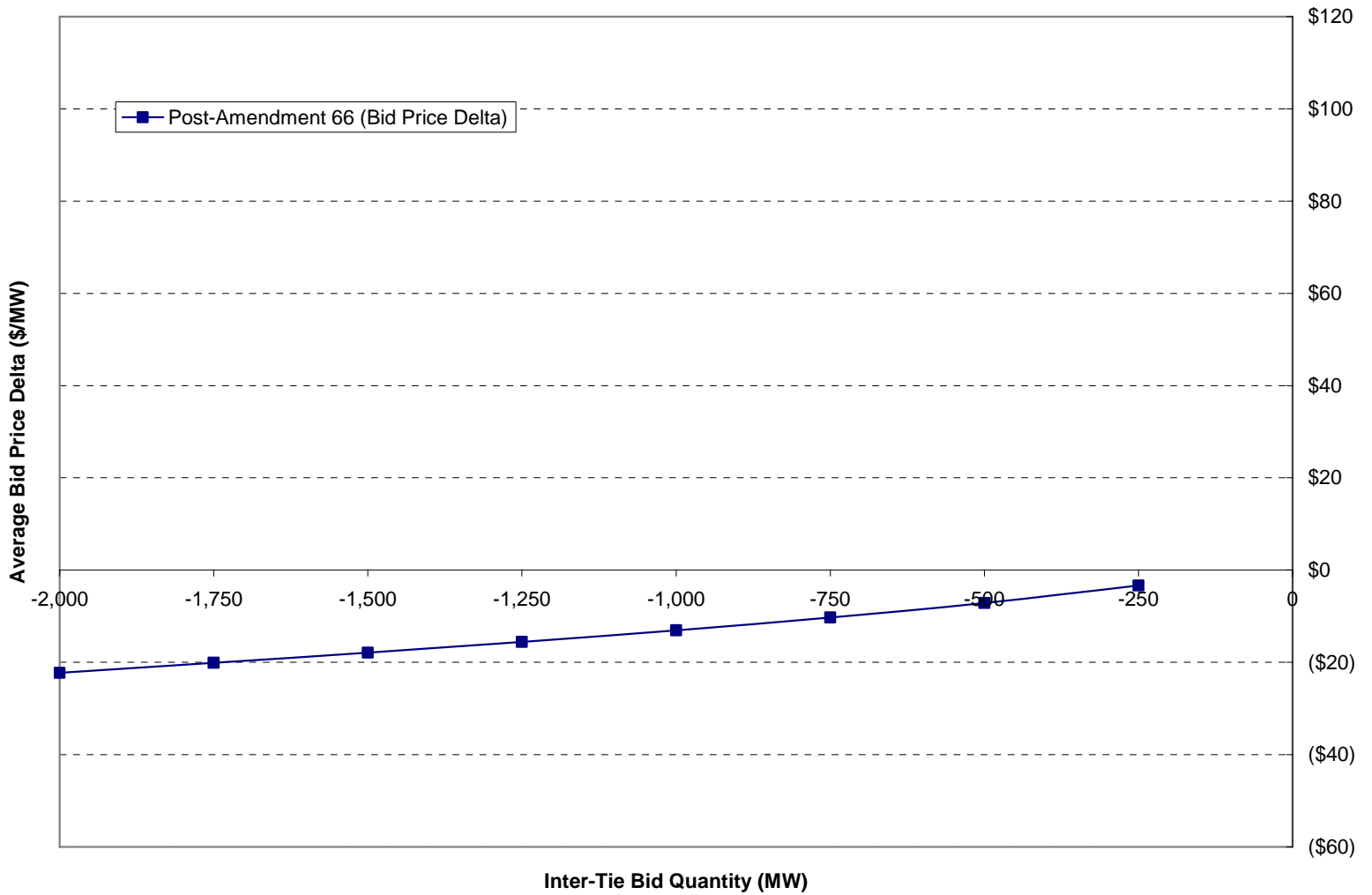
**Table 3. Costs for Gross Pre-Dispatched Energy (Powerex Approach)**

Month	Incremental Energy			Decremental Energy		
	Avg. Pre-Dispatch Cost	Bilateral Index	Difference	Avg. Pre-Dispatch Cost	Bilateral Index	Difference
October '04	\$54.47	\$45.79	\$8.69	\$37.89	\$44.25	(\$6.36)
November '04	\$54.20	\$49.79	\$4.41	\$41.21	\$46.72	(\$5.51)
December '04	\$52.86	\$49.51	\$3.35	\$41.59	\$48.42	(\$6.83)
January '05	\$54.53	\$47.43	\$7.09	\$38.44	\$46.90	(\$8.46)
February '05	\$53.94	\$46.95	\$6.99	\$37.21	\$45.25	(\$8.04)
March '05	\$61.08	\$50.68	\$10.40	\$36.40	\$49.67	(\$13.27)
Total (Bid or Better)	\$55.99	\$48.52	\$7.47	\$38.71	\$47.29	(\$8.58)
April '05	\$58.41	\$52.12	\$6.29	\$38.92	\$48.64	(\$9.71)
May '05	\$43.79	\$37.99	\$5.80	\$15.88	\$29.99	(\$14.11)
June '05	\$42.80	\$38.05	\$4.75	\$29.20	\$39.60	(\$10.40)
July '05	\$53.30	\$54.74	(\$1.44)	\$39.44	\$51.39	(\$11.96)
August '05	\$62.36	\$66.38	(\$4.02)	\$60.03	\$69.07	(\$9.03)
September '05	\$72.02	\$70.78	\$1.24	\$66.05	\$78.78	(\$12.73)
October '05	\$88.96	\$85.95	\$3.01	\$76.07	\$84.43	(\$8.36)
November '05	\$72.84	\$70.69	\$2.15	\$54.88	\$67.63	(\$12.75)
December '05	\$79.43	\$81.82	(\$2.39)	\$69.76	\$83.63	(\$13.87)
January '06	\$60.29	\$55.25	\$5.04	\$34.63	\$44.83	(\$10.20)
February '06	\$56.97	\$56.48	\$0.50	\$40.80	\$53.62	(\$12.81)
March '06	\$54.46	\$50.65	\$3.80	\$35.31	\$47.47	(\$12.16)
April '06	\$38.68	\$38.72	(\$0.04)	\$12.66	\$25.90	(\$13.24)
May '06	\$40.48	\$31.56	\$8.92	\$15.66	\$27.10	(\$11.44)
June '06	\$47.28	\$42.44	\$4.84	\$16.01	\$27.24	(\$11.23)
July '06	\$103.45	\$85.46	\$18.00	\$45.71	\$56.55	(\$10.84)
August '06	\$96.68	\$69.29	\$27.38	\$52.78	\$58.58	(\$5.79)
September '06	\$41.09	\$41.45	(\$0.36)	\$34.49	\$42.10	(\$7.61)
October '06	\$54.56	\$49.56	\$5.01	\$39.43	\$45.95	(\$6.52)
November '06	\$53.56	\$56.86	(\$3.30)	\$34.04	\$48.43	(\$14.39)
Total (As-Bid)	\$60.47	\$57.80	\$2.67	\$32.15	\$43.38	(\$11.23)

**Figure 10. Average Bid Price Deltas for Incremental Energy  
(November 2006)**



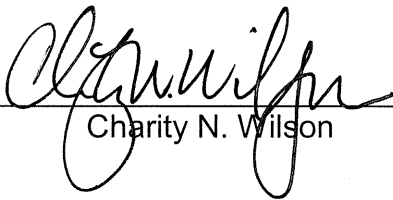
**Figure 11. Average Bid Price Deltas for Decremental Energy  
(November 2006)**



## Certificate of Service

I hereby certify that I have this day served a copy of this document upon all parties listed on the official service list compiled by the Secretary in the above-captioned proceedings, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated this 20<sup>th</sup> day of December, 2006 at Folsom, California.

  
Charity N. Wilson